

Studies on Trichoptera(Insecta) of Korea(North). V. Superfamily of Limnephiloidea, except Lepidostomatidae and Leptoceridae

Krassimir KUMANSKI

National Museum of Natural History, 1, Boulv. Russki, Sofia 1000, Bulgaria

Abstract Faunistic data for 32 species (4 of them left as sp.) belonging to 8 families of Limnephiloidea are reported. A genus *Dicosmoecus* and 13 species from various families are reported for the first time from Korean peninsula. *Hydatophylax sakharovi* sp. n. is described as new to science, comparing with original drawings of genitalia of the related species, *H. magnus* (Martynov). Female genitalic structures of four other species, *Limnephilus* sp. (gr. *rhombicus*), *Goera parvula* Martynov, *Goera japonica* Banks(=*squamifera* Martynov ? ; =*interrogationis* Botosaneanu ?), and *Gumaga okinawaensis* are illustrated for the first time. A new synonymy is proposed: *Notidobia chaoi* Hwang, 1957, syn. nov. of *Gumaga okinawaensis* Tsuda, 1938.

Key words faunistics, systematics, Trichoptera, Phryganeidae, Phryganopsychidae, Brachycen-tridae, Limnephilidae, Goeridae, Sericostomatidae, Odontoceridae, Molannidae, Korea.

INTRODUCTION

Nearly half of the known Trichoptera are included in this largest superfamily. Ten families of Limnephiloidea are known in Korea, all of them represented in the collections recently studied by the author. Two families, Lepidostomatidae and Leptoceridae, have been considered separately (Kumanski & Weaver, in press; Kumanski, in press). In the present paper, data on 32 species belonging to 8 other families are provided. Among them, a new species is described and 13 species are newly recorded from Korean peninsula, a species is newly synonymized, and genitalia of unknown females of four species are also illustrated. Only those of the localities, where representatives of Limnephiloidea have been collected, are listed here; their numeration is after the general list of localities (Kumanski, 1990), with the addition of three new ones, 9h, 29e and 31b.

Province Hwanghenam-do (Southern Hwanghe)

Loc. 1a: Haeju, 6.VI.1987 (leg. M. Josifov, P. Beron & Z. Hubenov=MJ, PB & ZH, at light).

Loc. 2a: Mt. Sujang-san (small mountain near Haeju), ca. 300–500m alt., 28.VIII.1982 (leg. P. Beron & A. Popov=PB & AP).

Loc. 2b: same place, 26–27.IX.1978 (leg. K. Kumanski=KK).

* The term of "Korea" used in this paper means the northern part of Korean peninsula geographically, "The Democratic Peoples Republic of Korea" from which all material were originated.

Kesŏng City

Loc. 4: Mt. Bagyŏn-san (ca. 20km N. of Kesŏng), mountain river below the waterfall Bagyŏn, 21.V.1975 (leg. M. Josifov = MJ).

Loc. 8b: Kesong, inner city, 25.VIII.1982 (leg. PB & AP).

Province Kangweon-do

Loc. 9a: Mt. Kumgang-san, the foothills, near Gosŏng Hotel (ca. 50m alt.) 2–3.X.1978 (leg. KK, at light).

Loc. 9b: same place, 29–31.V.1970 (leg. S. Mahunka & H. Steinmann = SM & HS).

Loc. 9c: same place, 18–20.VIII.1982 (leg. PB & AP, at light).

Loc. 9e: same region, 26.V.1975 (leg. MJ).

Loc. 9f: same region, 100–900m alt., 4.VI.1987 (leg. MJ. PB & ZH).

Loc. 9g: same region, 700m alt., 30.VII.1974 (leg. MJ).

Loc. 9h: same region, 20.IX.1989 (leg. M. Josifov & Z. Hubenov = MJ & ZH).

Loc. 10: Stream and small torrents of the plain, 1–3km from the sea (ca. 25km E of Vŏnsan), 6.X.1978 (leg. KK).

Loc. 11: River Čončhon, near Samthe vill. (ca. 8km W of Vŏnsan), 6.X.1978 (leg. KK).

Loc. 12: same region, streamlet above Samthe vill., left tributary of Čončhon river, 6.X.1978 (leg. KK).

Loc. 16a: Lake Samilpho (district Kosong), 25.V.1975 (leg. MJ).

Loc. 16b: same lake, 29.V.–1.VI.1970 (leg. SM & HS).

Pyŏngyang City

Loc. 18a: Pyŏngyang, R. Taedong-gang, 28.IX.–7.X.1978 (leg. KK, at light).

Loc. 19a: Pyŏngyang, park Tesong, 5.VIII.1977 (leg. MJ).

Loc. 20a: Bong-ha vill., banks of Taedonggang, 23.V.1970 (leg. SM & HS)

Loc. 21: Slow tributary of dam Sŏgam, near Sunan vill., 10.X.1978 (leg. KK).

Province Pyŏngannam-do (Southern Pyŏngan)

Loc. 24: The outflow of dam Jongphung (left tributary of R. Ch'ŏngch'ŏn-gang, ca. 200m alt., 29.IX.1978 (leg. KK).

Loc. 25: "Sŏgam, 17.V.1975" (leg. MJ).

Loc. 27: "Thesong, near Kijang, 31.V.1975" (leg. MJ).

Province Pyŏnganbuk-do (Northern Pyŏngan)

Loc. 29a: Mt. Myohyang-san, the foothills (ca. 200m alt.), the Hotel, 22.V.1987 (leg. MJ, PB & ZH, at light).

Loc. 29b: same place, 8–12.VI.1987 (leg. MJ, PB & ZH, at light).

Loc. 29c: same place, 14–18.VIII.1982 (leg. PB & AP, at light).

Loc. 29e: same place, 3.VIII.1990 (leg. MJ & ZH, at light).

Loc. 30: Mt. Myohyang-san on the road to Sangvon-am, ca. 400m alt., 13.VIII.1982, carried by Asilidae (leg. PB & AP).

Province Ryanggang-do

Loc. 31a: Chann-Pay Plateau, Sam-jijon, 16.VII.1974 (leg. MJ).

Loc. 31b: same place, ca. 1,100m alt., 4.IX.1989 (leg. MJ & ZH).

Loc. 32: same Plateau, 1,600m alt., 25–28.VIII.1971 (leg. J. Papp & S. Horvatovich=JP & SH).

Loc. 33: same place, the Hotel, 25.VIII.1971 (leg. JP & SH).

Province Hamgyŏngbuk-do (Northern Hamgyŏng)

Loc. 37: Onpho vill., 10–12.VI.1975 (leg. MJ).

SYSTEMATICS

Family Phryganeidae

The first record on this family from Korea was by Tsuda (1942) with one species, *Phryganea sinensis* McL. but it is not recognized now. Three other species are reported here, two of them already recorded from Korea.

Agrypnia picta Kolenati, 1848

Material examined. Loc. 8b–2♀; Loc. 9c–15♂, 27♀.

This species was previously reported from Korea with one by male by Botosaneanu (1970).

Distribution. Palaearctic, including Korea(N.)

Agrypnia czerskii (Martynov, 1924)

Species new to Korea.

Material examined. Loc. 9c–1♂; Loc. 32–1♀; Loc. 33–1♀.

Distribution. Palaearctic (Finland, NE China, Amur basin, Korea)

Semblis phalaenoides (Linnaeus, 1758)

Material examined. Loc. 29a–1♂, 1♀.

This locality is close (or similar ?) to one of the two recently published by Mey (1989). The synonymy of *S. coreana* (Kuw.) with *S. phalaenoides*, proposed there (Mey, op. cit.), is confirmed again.

Distribution. Northern part of the Palaearctic, Korea (S.N.)

Family Phryganopsychidae

Phryganopsyche latipennis (Banks, 1906)

Material examined. Loc. 10–1♀; Loc. 29a–4♂, 1♀.

This species was reported from Korea by Olah (1985).

Distribution. Assam, Sikkim, Burma, China, USSR's Far East, Korea(S.N.), Japan.

Family Brachycentridae

Micrasema sp. (? *gelidum* McLachlan, 1876)

Material examined. Loc. 2b–2♀.

Having only females, I could associate more or less provisionally, them with *M. gelidum*, which was reported from Korea (Botosaneanu, 1970). In such a case, this locality (Mt. Sujang-san nearly on the 38° N) would be the southernmost one for this North Palaearctic species.

Family Limnephilidae

Despite of the fact that this is the largest Trichoptera family within the Holarctic, very little have been known about it in Korean Peninsula. First information concerning Limnephilidae in Korea, I could find, was in Schmid (1952), where *Nemotaulius* (*N.*) *brevilinea* (McL.) has been mentioned. Next data on that matter was reported by Botosaneanu (1970), with one species—*Pseudostenophylax riedeli* (not re-established now) described as new, and three other Palaearctic species also mentioned. Another new species, *Nemotaulius* (*Macrotaulius*) *coreanus*, described by Olah (1985), has also not been repeatedly found so far. Two other limnephilids have recently been added to the short Korean list of this family (Mey, 1989). Thus 8 species belonging to genera have been known in Korea to data.

This evident lack of sufficient knowledge might be explained by following simple facts: a) most of the previous collection were only made in the plain territories, large mountainous regions N. Korean in still remain hardly accessible for foreign collectors; b) few collecting has been done in late summer–autumn season, when limnephilid's emergency predominates; c) a great deal of the caddisflies recently examined were collected by specialists other than trichopterologists, therefore represented just a supplementary portion from the insect collections. Although the number of limnephilids now known in Korea is 20 species of 10 genera, considerable further additions should probably be expected.

Subfamily Dicosmoecinae

Dicosmoecus palatus (McLachlan, 1872)

Genus and species new to Korea.

Material examined. Loc. 31b—1♂; Loc. 33—1♀.

Distribution. East palaearctic, Korea(N.).

Ecclisomia kamtschatica (Martynov, 1914)

Material examined. Loc. 37—3♀.

This locality, together with the one recently reported (Mey, 1989), appears to be the southernmost limits of distribution of this species.

Distribution. N.E. palaearctic (Kamtshatka, The Kuriles, Amurbasin, Korea).

Nothopsyche speciosa Kobayashi, 1959

Species new to Korea.

Material examined. Loc. 12—1♂.

Distribution. Japan (Kyushu), and Korea (S.N.).

Subfamily Apataniinae

No taxa from this subfamily has been reported from N. Korea so far but two unnamed species were reported from S. Korea (Yoon, 1988).

***Apatania sinensis* Martynov, 1914**

Species new to Korea.

Material examined. Loc. 18a—3♂, 2♀; Loc. 29a—1♂, 1♀.

Distribution. Eastern China, USSR's Far East, and Korea (N.).

***Apatania* sp. (? *mirabilis* Martynov, 1909)**

Species new to Korea.

Material examined. Loc. 31a—1♀.

This specimen is resembling *A. mirabilis* both after the original description (Martynov, 1909) and the drawings by Schmid (1953), but males have not been found in Korea to date. It should be associated with that Central-Asian (Tibet) species only provisionally.

Subfamily Neophylacinae***Neophylax ussuriensis* (Martynov, 1914)**

Species new to Korea.

Material examined. Loc. 9a—8♂, 2♀; Loc. 12—6♂; Loc. 31b—3♂; Loc. 33—1♀.

Distribution. USSR's Far East, Sakhalin, Japan, Korea (S.N.).

Subfamily Limnephilinae

This is the major limnephilid component in Korea, representing 12 species belong to 4 genera. However, no species of the genus *Limnephilus* was previously reported.

***Limnephilus sericeus* (Say, 1824)**

Species new to Korea.

Material examined. Loc. 32—1♂, 1♀.

Distribution. North Holarctic, including Korea (N.)

***Limnephilus sibiricus* Martynov, 1929**

Species new to Korea.

Material examined. Loc. 21—3♂, 4♀; Loc. 24—1♀.

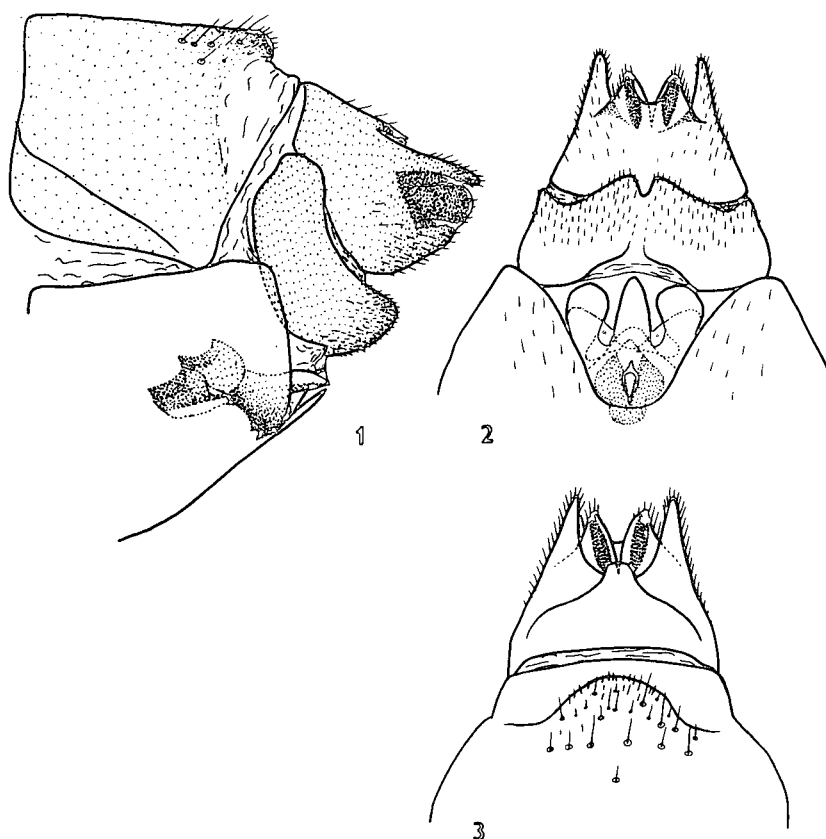
Distribution. East Palaearctic Siberia, Korea (N.).

***Limnephilus fuscovittatus* Matsumura, 1904**

Species new to Korea.

Material examined. Loc. 18a—1♂.

Because of its original description in Japanese, the determination of this species was rather difficult. However, having consulted Dr. H. Malicky, it was concluded that, most probably, this is *L.*



Figs. 1-3. Female genitalia of *Limnephilus* sp. (gr. *rhombicus*), bar = 1mm: 1. lateral, 2. ventral, 3. dorsal.

fuscovittatus (with *L. subfuscus* Ulm. being its synonym).

Distribution. Japan, China (Sechwan), Korea (N.).

***Limnephilus* sp. (gr. *rhombicus*)**

Species new to Korea.

Material examined. Loc. 32-1 ♀.

This female (the genitalia presented on Figs. 1-3) seems to belong either to the Siberian *L. apicalis* Mart., of which the female is unknown, or to another new (?) species.

***Nemotaulius* (N.) *brevilinea* (McLachlan, 1871)**

Material examined. Loc. 9c-4 ♂, 1 ♀.

As it was already mentioned, Schmid (1952) reported this species from Korea without special data about the locality.

Distribution. Japn, Korea (N.).

***Nemotaulius* (*Macrotaulius*) *admorsus* (McLachlan, 1866)**

Species new to Korea.

Material examined. Loc. 9c—4♂, 8♀; Loc. 19a—1♀.

Distribution. USSR's Far East (including Sakhalin and The Kuriles), Japan, Korea (N.).

Nemotaulius (Macrotaulius) mutatus (McLachlan, 1872)

Material examined. Loc. 9c—10♂.

This is the second report for this species in Korea; The first one was reported from Wonsan by Botosaneanu (1970).

Distribution. East Palaearctic, including Korea (N.).

Asynarchus amurensis (Ulmer, 1905)

Material examined. Loc. 9a—2♂; Loc. 31b—1♂.

Botosaneanu (1970) reported this species from Korea for the first time. The locality Nr. 9 (Mt. Kumgang-san) appears to be the southernmost of the area of this species.

Distribution. East Palaearctic, including Korea (N.).

Hydatophylax grammicus (McLachlan, 1880)

Material examined. Loc. 37—1♀.

This is the second report of the species in Korea; the first one made by Mey (1989). The colour pattern is well corresponding to that of the subspecies *H.g. unicolor* (Martynov, 1914). The validity of the latter, however, seems to be not sufficiently stated; the basin of Ussuri (its locus typicus) is entirely included into the area of distribution of the nominate form. More noteworthy, I suggest that a large size of female was examined, with length of forewing 25mm, the wingspan 54mm, correspondingly.

Distribution. North Palaearctic.

Hydatophylax nigrovittatus (McLachlan, 1872)

Material examined. Loc. 29a—1♂; Loc. 37—1♂, 1♀.

The first report for this species from Korea has been made by Botosaneanu (1970). The localities by Yoon (1988) are the southernmost ones known for this species so far.

Distribution. North palaearctic, including Korea (S.N.).

Hydatophylax magnus (Martynov, 1914)

Material examined. Loc. 2b—18♂, 5♀; Loc. 30—1♂.

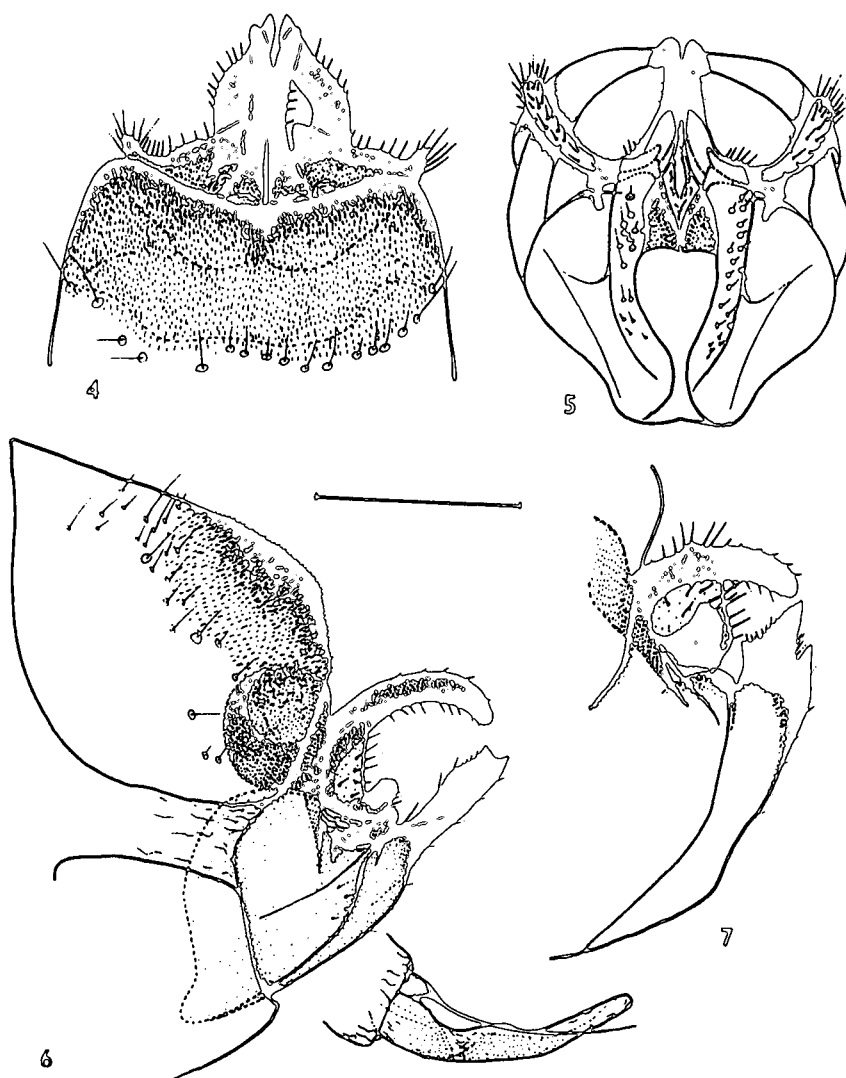
Species new to Korea. The localities now reported are the southernmost ones from its distribution. Genitalia—Figs. 7, 10, 11.

Distribution. USSR's Far East, Korea.

Hydatophylax sakharovi sp. nov.

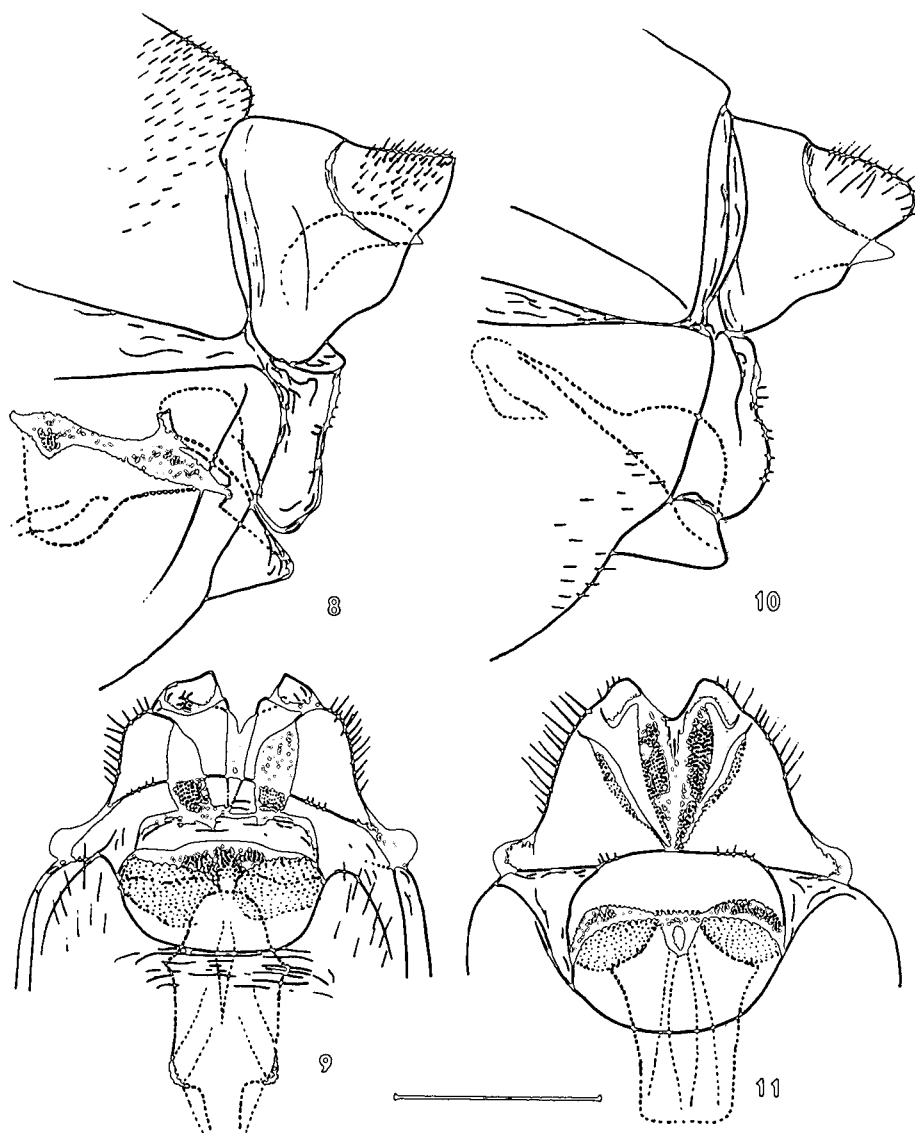
This species is habitually very much resembling *H. magnus* (Mart.). Large and robust insects, with length of forewing 20—25mm in male, 24—26mm in female.

Male genitalia. Tergite VIII with a vast zone of small, dense spines. Segment IX with its dorsal portion caved, drawn in below 8th tergite; its ventral portion laterally enlarged (Fig. 6). Superior



Figs. 4—7. Male genitalia of *Hydatophylax* spp., bar=1mm: 4. *H. sakharovi* sp. nov., dorsal, 5. ditto, caudal, 6. ditto, lateral, 7. *H. magnus* (Mart.), lateral.

appendages situated very low, with their distal margin concave, their distobasal corners strongly chitinized, acute, pointing midwards (Fig. 4); viewed caudally (Fig. 5), superior appendages appearing as narrow, recurved plates. Intermediate appendages with long, strongly chitinized distal portions, in form of sticks, regularly recurved downwards; viewed laterally, they appear above superior appendages (Fig. 6). Inferior appendages with very short basal portion, and long, slender and heavily chitinized free portions, each one terminating into a pair of small, but distinct (laterally) teeth (Fig. 6); viewed caudally, inferior appendages narrow, slightly bowed, their dorsal parts with a blunt sub-apical external tooth each (Fig. 5). Aedeagus shaped the typical form of the genus; parameres needle-shaped, as long as the central body (Fig. 6).



Figs. 8-11. Female genitalia of *Hydatophylax* spp., bar=1mm: 8. *H. sakharovi* sp. nov., lateral, 9. ditto, ventral, 10. *H. magnus* (Mart.), lateral, 11. ditto, ventral.

Female genitalia. Dorsal part of segment IX broadly fused with segment X, forming a large, laterally triangular piece (Fig. 8); its dorso-caudal edge with a conspicuous triangular excision; two mesal wings forming a pair of acute internal corners, with their tips faintly protruding beyond hind margin (Fig. 8). Viewed ventrally (Fig. 9), two seed-shaped, dark and broad strips well visible. Spermathecal sclerites narrow if viewed laterally, and in shape of a parallel-sided structure in dorso-ventral point of view.

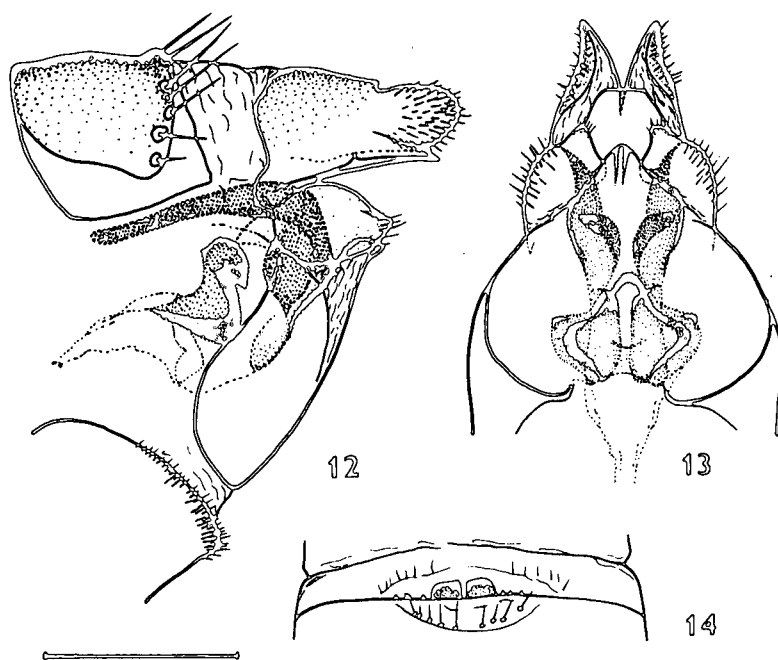


Fig. 12-14. Female of *Goera parvula* Mart., bar=0.5mm: 12. genitalia, lateral, 13. ditto, ventral, 14. teeth of sternum VI.

Material examined. Holotype ♂-Loc. 9a. Paratypes: 7♂, 3♀-Loc. 9a; Loc. 9c-1♂; Loc. 9h-1♂. Except for 2♂ Paratypes deposited in collections of Dr. H. Malicky (Lunz, Austria) and the Natural History Museum of the Humboldt-University (Berlin, Germany), the type series preserved in alcohol in the collection of the National Museum of Natural History, Sofia, Bulgaria.

Discussion. The new species is close to *H. magnus* (Mart.). Regardless of the habitual similarity, these two sister species are readily recognized by their genitalic particularities. Following features are specific for *H. sakharovi* sp. nov.: Male-slender inferior appendages, lower position of the superior appendages (compare Figs. 6 and 7 respectively); Female-parallel and conspicuously darkened strips of segment X (viewed ventrally), the corresponding ones in *H. magnus* appearing much narrower, forming a V-shaped figure (compare Figs. 9 and 11 respectively); the piece composed by the fused IX and X segment is somewhat higher (compare Figs. 8 and 10 respectively).

Derivatio nominis. The new species is devoted to the bright name of Academician Andrey Sakharov (died December 15, 1989) who was an eminent Russian scientist and one of the greatest humanitarians of our Century.

Family Goeridae

Four species of genus *Goera* have been reported in Korea. One of them, *G. tungusensis* Mart. was reported first by Tsuda (1942) and recently by Mey (1989). The independent specific status of an-

other species, *G. interrogationis* Bots. seems to be very uncertain, although not finally decided so far.

***Goera parvula* Martynov, 1935.**

Material examined. Loc. 4–10♂, 6♀ (two pairs in copula); Loc. 9b–3♂; Loc. 9f–1♂; Loc. 29a–23♂, 6♀; Loc. 29b–13♂, 22♀.

In fact, the female of this species, and the genitalia in particular, remained unknown. Besides the relatively small size of both sexes, following genitalic structures characterize the female of *G. parvula* from the next species discussed below: ventral ridge of teeth on sternum VI consisting of two big, rounded teeth, and a few minute ones on each side (Fig. 14); dorsal piece, composed by the fused 9th and 10th segments, with its ventral plate broad and blunt (Fig. 13); spermathecal sclerites shortened (Fig. 12).

Distribution. USSR's Far East, Korea (N.)

***Goera japonica* Banks, 1906 (= *G. squamifera* Mart. ? ; = *G. interrogationis* Bots. ?)**

Material examined. Loc. 1a–3♂; Loc. 2a–3♀; Loc. 4–3♂, 1♀; Loc. 9a–6♂, 6♀; Loc. 9c–68♂, 31♀; Loc. 9f–1♂, 2♀; Loc. 11–1♂, 1♀; Loc. 12–2♀; Loc. 16b–1♀; Loc. 21–2♂, 1♀; Loc. 24–3♂, 1♀; Loc. 29a–22♂, 9♀; Loc. 29b–7♂, 8♀; Loc. 29c–9♂, 15♀; Loc. 29e–15♂, 6♀.

This species is evidently one of the most common caddisflies in Korea and in the lowland territories in particular. A similar wide distribution in Japan was been reported for *G. japonica* Bks. by Tsuda (1942), and he also recorded *G. japonica* also from Korea. In his turn Botosaneanu (1970), describing *G. interrogationis* as a new species from Korea, pointed out the possible adequacy between it on one side, and *G. japonica* and *G. squamifera*, on the other. Finally, Mey (1989) also stressed on the lack of distinctive features in the descriptions of these three species. Although the synonymy can not be finally declared until a thorough revision of types would be undertaken, I use tentatively the prior name of *G. japonica* for the examined Korean specimens; the eventual suggestion that such an eurybiotic species in Japan could be replaced in Korea by another, also so common one, should hardly be accepted. In order to enable the recognizing of this species from *G. parvula*, several drawings of female genitalia are given here (Figs. 15–17).

Distribution. Japan, Korean (S.N.) and (most probably) the USSR's Far East.

Family Sericostomatidae

***Gumaga okinawaensis* Tsuda, 1938 (= *Notidobia chaoi* Hwang, 1957, **syn. nov.**)**

Material examined. Loc. 16b–2♂, 1♀; Loc. 29a–112♂, 1152♀; Loc. 29b–12♀; Loc. 29e–1♀.

Hwang (1957) described *Notidobia chaoi* based on males from China as new species. After then, the species name has been reported from Korea by Botosaneanu (1970) and Mey (1989). The genitalic figures of the both sexes of this species are, in fact, identical to those of *Gumaga okinawaensis*—a new genus and species described from Japan by Tsuda (1938). Further on, the female of this species correspond closely to *Oecismus* (?) *orientalis* which described by Martynov (1935) based on two females from the basin of Ussuri. Having studied larval material from the same region (Ussuri),

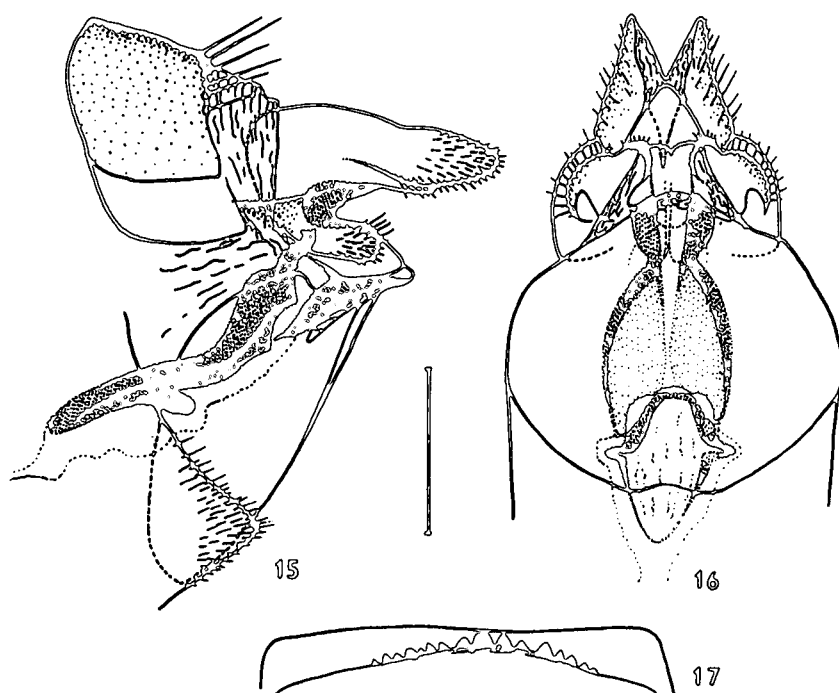


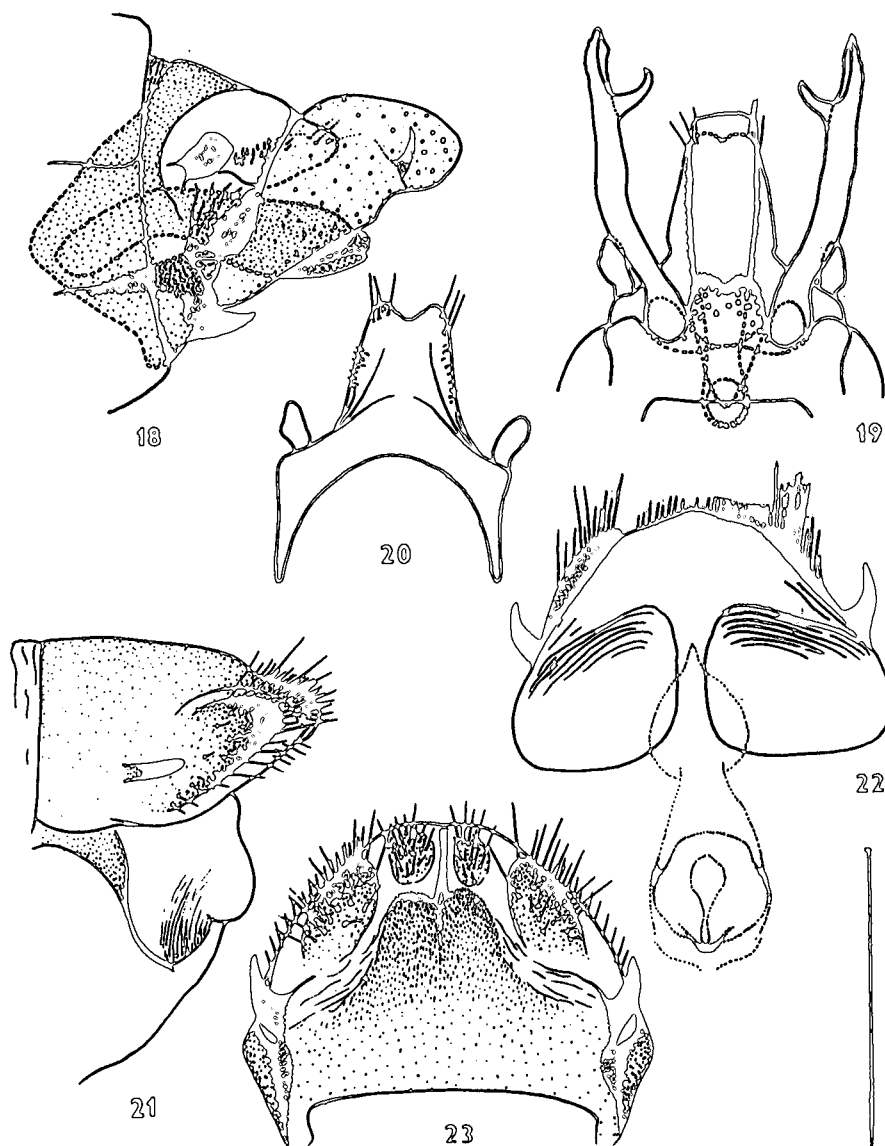
Fig. 15-17. Female of *Goera japonica* Bks., bar=0.5mm: 15. genitalia, lateral, 16. ditto, ventral, 17. teeth of sternum VI.

Levanidova (1982) concluded that the species described by Martynov should in fact belong to the genus of *Gumaga*. Having studied the large series of adults now available, I have come to the above suggested synonymy. Together with new figures of male genitalia (Figs. 18-20), a description of the female is given below.

Female. Notably larger in size than male; average length of forewing 8.5mm, whereas 6.5mm male, otherwise the coloration, head structure and spurs apparently similar in both sexes.

Genitalia. Sternum IX with two separated, obtuse plates, each of them with conspicuously sclerotized anterior edge (Fig. 21), and faintly striated inferior part (Fig. 22). Tergum IX with prolonged distomedian portion and a pair of very conspicuous baso-lateral, horn-like processes. Dorso-median projection of tergum IX posteriorly slightly bilobed, surrounded by a pair of large, low setose warts (derivates of segment X ?); a second pair of much smaller setose warts, separated by a narrow, dark strip, situated caudad of this projection (Fig. 23). Spermathecal sclerites somewhat oversimplified on Fig. 22.

Discussion. The generic diagnosis, proposed by Tsuda (1938) for *Gumaga*, should be enlarged with following important elements in both sexes: Male-inferior appendages simple in shape, without the long and conspicuous for all the other genera of Sericostomatidae, basoventral process; Female-tergum IX with a pair of conspicuous, horn-like baso-ventral processes.



Figs. 18-23. Genitalia of *Gumaga okinawaensis* Ts., bar=0.5mm: 18. male, lateral, 19. ditto, ventral, 20. segments 9th and 10th, dorsal, 21. female, lateral, 22. ditto, ventral 23. ditto, dorsal.

Distribution. Japan (Honshu, Okinawa), Korea (N.), China, USSR's Far East.

Family Odontoceridae

Three species of the genus *Psilotreta* have been reported in Korea, but one of them, *P. pyonga* Olah, 1985, was not found this time.

***Psilotreta locumtenes* Botosaneanu, 1970**

Material examined. Loc. 29a—9♂, 4♀; Loc. 29b—2♂, 2♀.

Distribution. Korea (N.).

***Psilotreta falcata* Botosaneanu, 1970**

Material examined. Loc. 9f—2♂, 1♀.

The locality here with reported appears to be the southernmost one known for this species.

Distribution. Korea (N.), and the southern part of the USSR's Far East.

***Psilotreta* sp.**

Material examined. Loc. 9e—1♀.

This female is somewhat resembling (but not identical) that of *P. locumtenes*. It might belong either to *P. pyonga* Olah, or to another species.

Family Molannidae***Molanna moesta* Banks, 1906**

Material examined. Loc. 9g—2♂; Loc. 16a—11♂, 2♀; Loc. 16b—4♂, 5♀; Loc. 20a—1♂, 1♀; Loc. 21—4♂, 4♀; Loc. 24—2♂, 2♀; Loc. 25—23♂, 13♀; Loc. 27—1♂, 1♀.

A common species in the stagnant or slowly current fresh waters of the plain, already reported in Korea (Botosaneanu, 1970).

Distribution. Eastern Palearctic, including Korea (S.N.).

***Molanna submarginalis* McLachlan, 1872**

Material examined. Loc. 32—2♂.

Distribution. Northern Palaearctic, including Korea (N.).

***Molanna* sp.**

Material examined. Loc. 1a—1♀.

This very large, black coloured female could hardly be determined until the corresponding male would be found. This species is clearly different from both *M. moesta* and *M. submarginalis*.

REFERENCES

- Botosaneanu, L. 1970. Trichoptères de la République Démocratique Populaire de Corée. Ann. zool. (Warszawa), 27: 275—359.
- Hwang, Chi-ling. 1957. Description of Chinese caddis-flies (Trichoptera) (in Chinese). Acta Entomol. Sin., 7 (4): 373—404.
- Kumanski, K. 1990. Studies on the fauna of Trichoptera (Insecta) of Korea. I. Superfamily Rhyacophiloidea. Hist. nat. bulg., 2: 36—60.
- Kumanski, K. (in press). Studies on the fauna of Trichoptera (Insecta) of Korea, II. Family

- Leptoceridae. Hist. nat. bulg., 3.
- Kumanski, K. & J. Weaver (in press). Studies on the fauna of Trichoptera of Korea. IV. Family Lepidostomatidae. Aquatic Insects.
- Levanidova, I. 1982. Amphibiotic insects of the mountain regions of the USSR's Far East (in Russian). Nauka, Leningrad, 214pp.
- Martynov, A. 1909. Les Trichoptères du Thibet oriental et du Tsaidam, D'après les matériaux collectionnés par l'expédition de la Société Impériale Géographique russe, sous la direction de T.H. Koslov en 1900–1901 (in Russian). Ann. Mus. Zool. Acad. Sci. St-Petersb., 14: 259–309.
- Martynov, A. 1914. Die Trichopteren Sibiriens und der abgrenzenden Gebiete. IV. Subfamilie Limnephilinae (in Russian). Ann. Mus. Zool. Acad. Sci. St-Petersb., 19: 173–285.
- Martynov, A. 1935. Trichoptera from the Amur region. I. (in Russian). Trav. Inst. Zool. Acad. Sci. USSR, 2: 205–395.
- Mey, W. 1989. Taxonomische und faunistische Notizen zu einigen Köcherfliegen (Trichoptera) aus Korea. Acta Entomol. Bohemoslov. 86: 295–305.
- Olah, J. 1985. Three new Trichoptera from Korea. Folia entomol. Hung., 46: 137–142.
- Schmid, F. 1952. Les genres *Glyptotaelius* Steph. et *Nemotaulius* Bks. (Trichoptera, Limnephilidae). Bull. Soc. Vadoise Sci. Nat., 65: 213–244.
- Schmid, F. 1953. Contribution à l'étude de la sous-famille des Apataniinae (Trichoptera, Limnephilidae). I. Tijdschr. Entomol. 96 (1–2): 109–167.
- Tsuda, M. 1938. Zur Kenntnis der Trichopteren von Liukiu auf Grund des Materials der 1935 Liukiu-Expedition. Trans. Biogeogr. Soc. Jap., 3: 100–104.
- Tsuda, M. 1942. Japanische Trichopteren. I. Systematik. Mem. Coll. Sci. Kyoto Imper. Univ. (B), 17: 239–339.
- Yoon, I.B. 1988. Illustrated Encyclopedia of Fauna & Flora of Korea, Vol. 30 (Aquatic Insects), Ministry of Education, Korea, 840pp.

北韓産 날도래目の 分類. 5. 우묵날도래上科

Kumanski, K.

불가리아 국립자연사박물관, 불가리아

北韓産 우묵날도래上科는 8科 32種으로 整理되며 이중 13種의 未記錄種과 1未記錄屬 *Dicosmoecus*가 한반도에서는 처음으로 報告된다. 또한 1 新種 *Hydatophylax sakharov* sp. nov.가 새로이 記載된다. 그리고 *Limephlius* sp., *Goera parvula* Martynov, *G. japonica* Banks, *Gumaga okinawaensis* 등 4種의 암컷 生殖器를 처음으로 비교도해 하였다. *Gumaga okinawaensis*는 *Notidobia chaoi* Hwang의 새로운 synonym으로 整理된다.

검색어: 分類, 날도래目, 우묵날도래上科, 韓國

(Received: April 20, 1991)